

- Crocigrapha Normani* Grote. Quercus.
Xylomiges confusa Hübn. Quercus.
Scopelosoma Moffatiana Grote. Hamamelis.
Litoprosopus futilis G. & R. *Sabal palmetto* (Lec., Chapman).
Marasmalus ventilator Grote. Rhus typhina.
 " *histrion* Grote. Rhus.
Deva purpurigera Walk. *Thalictrum cornutum*.
Plusia Putnami Grote. Poa, Agrostis, etc.
Plusia monodon Grote. Liatris, Helianthus.
Pyrrhia exprimens Walk. Rhus., Robinia.
Catocala relictæ Walk. Betula, Populus.
 " *Briseis* Edw. Salix.
 " *habilis* Gr. Juglans.
Panopoda carneicosta Guen. Quercus.
 " *rufimargo* Hübn. Quercus, Lilia.
Homoptera minerea Guen. Salix.

TEN NEW SPECIES OF ORTHOPTERA FROM NEBRASKA— NOTES ON HABITS, WING VARIATION, ETC.

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A trifle more than two years ago the writer first entertained the idea of preparing a synopsis of the Orthoptera of Nebraska, with the intention of publishing it as a special bulletin from the Agricultural Experiment Station. With that end in view, work was immediately begun; and in the course of a few months the greater portion of the manuscript was ready for the printer. At this time other matters that were considered of more immediate importance came up at the Station, and that of the Orthoptera was laid aside. It has now been lying nearly two years.

As the result of special collecting and study on the order for the past eighteen years within the State, my collection contains 241 species that have been taken within its boundary. Among these there are about two dozen species that appear to be new to the science of entomology. From among these apparently new things, the following are selected for publication at this time:

GRYLLIDÆ.

Cycloptilus borealis n. sp.—Head and pronotum of both sexes, together with the two basal abdominal segments of the female, light mahogany brown above; abdomen dark brown inclining to black on the dorsum which is more or less densely covered with silvery grey scales, giving the insect a grizzled appearance. Tibiæ and apical portion of the femora indistinctly fasciate with brown. Underside and basal portion of the legs pale yellowish.

Moderately robust, fusiform; the middle pair of legs rather small; posterior femora not very much inflated. Anal cerci of the female a little more than half as long as the body, quite stout and somewhat hairy; those of the male shorter and slenderer; those of the female directed backward, those of the male considerably divergent.

Length of body, ♂ and ♀, 7.5-8 mm.; of pronotum, ♂, 2.15 mm.; ♀, 1.85 mm.; of antennæ, ♂ and ♀, about 10 mm.; of hind femora, ♂, 3.5 mm.; ♀, 4 mm.; of anal cerci, ♂, 3 mm.; ♀, 4.1 mm.; of ovipositor, 4 mm.

This active little cricket was first taken by me on the 10th of August, 1888, at Valentine, near the Niobrara river. It was found among dead grass upon sandy soil on a south hill-slope. It was again met with on the margins of the large salt basin west of Lincoln on the 15th of the following month. These latter specimens were under boards lying upon sandy soil. Judging from the fact that all the specimens thus far taken have been found upon sandy soil, it will be safe to call it a frequenter of sand districts, where it may be looked for under boards, loose stones, sticks and loose *debris* of all kinds during daytime.

Two other representatives of the genus have been described from North American localities, *i. e.*, *Cycloptilus squamosus* Scudder, a Texan species, and *Cycl. Americanus* Saussure, a Cuban species.

LOCUSTIDÆ.

Ceuthophilus pallescens n. sp.—This wingless cricket is very similar in appearance to *C. pallidus* Thos., but differs from that species in its markings and in the number and arrangement of the femoral and tibial spines. In size it is similar to *C. maculatus*, than which it is slightly less arched.

A moderately long legged species in which the spines are arranged as follows : Anterior femora with two spines beneath internally ; the middle, with about four pairs and an outer apical one ; posterior femora with both the inner and outer carinæ of the lower edge very thickly set with minute teeth-like spines, the inner row doubled near the middle. Posterior tibiæ furnished with five spines on each edge, somewhat alternately arranged and with the intermediate spaces filled with teeth-like shorter ones ; the lower edge is also supplied with three sub-apical and two apical spines only a little less prominent than those above. Middle and anterior tibiæ with three pairs of spines each on the under side. Antennæ moderately long. Eyes of medium size, pyriform.

General color very pale straw color. The middle and hind thoracic segments, together with the first abdominal, marked above with a narrow transverse black patch each. Through these there is drawn a narrow dorsal line that severs them into lateral halves. Eyes shining black. Spines of legs tipped with brown. In addition to the usual spines this insect is characterized by the presence of numerous smaller, almost microscopical spines that are scattered over the general surface of the femora and tibiæ. These latter are entirely brown.

Length of body, ♀, 19 mm.; of antennæ, 30 mm.; of hind femora, 12.5 mm.; of hind tibiæ, 14 mm.; of ovipositor, 12.25 mm.

Described from one female and one immature male.

Habitat.—Dawes and Sioux counties in northwestern Nebraska. The female specimen was taken in a shallow well 17 miles north of Harrison. The male was found under a timber at the tunnel on the line of the Burlington & Missouri R. R., south of Crawford, in Dawes Co.

Udeopsylla compacta n. sp.—About the size of *Daihinia** *brevipes* Hald., to which it bears a very striking resemblance ; but is darker coloured than that insect, and at once distinguishable from it in having the tarsi of anterior and posterior legs four-jointed instead of only three-jointed. The posterior femora of this insect also lack the heavy spines that are so characteristic of the other.

Legs short and heavy, the posterior femora in the male very similar to those of the female, very minutely spined below ; the posterior tibiæ not

*The genus *Daihinia* is based on the abnormal number of tarsal joints in the anterior and posterior feet, where there are three instead of four. Haldemann's type was not an unique in that respect. I have fully a dozen specimens all of the typical form.

bowed, strongly spined above and below. Antennæ heavy, about as long as the body.

Length of body, ♂ and ♀, 22 mm.; of antennæ, about 24 mm.; of posterior femora, ♂ and ♀, 12.5-14 mm.; of hind tibiæ, ♂ and ♀, 16 mm.

This hitherto undescribed cricket is a native of the sandy districts of Nebraska, Dakota and Kansas; and like the *Daihinia brevipes* Hald., to which it has been compared, also burrows into the sand. So closely do these two insects resemble each other at a cursory glance that I did not distinguish their difference until about to label them for cabinet specimens. It is to be distinguished from *Udeopsylla robusta* and *nigra* by the greater size of its pronotum, also by its less glossy appearance. In colour it is a pitch-brown above and paler beneath.

There is still another species of these large, wingless "sand crickets" to be occasionally met with here in the West. It is the insect that I have called *Udeopsylla gigantea*.* As that characterization was very brief, the following description is herewith presented:—

Very dark brown, almost black, with an interrupted dorsal line and a few mottlings of a lighter shade. The posterior femora are very heavy and clumsy in the male, reaching more than half their length beyond the extremity of the body, furnished below with a row of nine short strong spines; posterior tibiæ three-sided, more strongly bowed than usual, and furnished above with two rows each of four spines which alternate, and between these smaller ones; the lower side also spined on apical half. Legs of female less inflated and not so strongly spined.

Length of body, ♂, 30 mm.; ♀, 26 mm.; of antennæ, ♂ and ♀, about 30 mm.; of hind femora, ♂, 24.5 mm., ♀, 17 mm.; of hind tibiæ, ♂, 25 mm., ♀, 19 mm.

This insect appears to be much scarcer than either *brevipes*, *robusta*, *nigra* or *compacta*, and is confined in its distribution to a much smaller area. It also burrows in the ground and lives solitary. It has been seen by me but once within the State, viz., in the vicinity of Lincoln, near the large salt basin. It is also to be met with in Kansas and the Indian territory—the pair upon which this description is based having been taken in Kansas.

*Bulletin of the Washburn Laboratory of Natural History, Vol. I., p. 127.

Thus far comparatively little attention has been paid to the conocephalids among the Locustidæ of North America. Especially is this true with reference to the genera *Xiphidium* and *Orchelimum*, both of which are rich in species here in Nebraska as well as in almost every other State of the Union. When I undertook to work over the specimens of these insects in my collection, it was but a very short time before the discovery was made of a number of new things. Some of the most striking of these are now described.

(To be continued.)

NOTES.

PHRAGMATOBIA RUBRICOSA HARRIS.

There is no doubt but that our specimens which go by the above name are referable to the European *P. fuliginosa* Linn.

Prof. Smith has noticed their superficial resemblance* which amounts to identity. I have compared examples from France with a series from New York and I can find no difference in ornamentation. Neither do they differ structurally. The venation is identical.† The genitalia of the male also are the same within the limits of variation of the species, which appear to be wide. In the specimen from Europe examined the supranal plate is elongate-triangular, produced to a point, concave below, slightly curved down and bulging a little laterally at the base. The side pieces are very long and narrow, gradually tapering and curved inwards. They are strongly concave on the inside, the sides being almost curved over, with a short, sharp projection above and below at a little more than half their length. Of *rubricosa* three specimens were examined. In two the anal plate was aborted, being represented only by a short, square piece; in the third it was present, of the same shape as in the specimen of *fuliginosa*, but a little narrower. The side pieces also varied. In the first and third specimens their edges were so much incurved that the two points came together and were united in one piece; in the other specimen they were as in *fuliginosa*, perhaps even a little less incurved.

From the above it will be seen that *rubricosa* cannot stand as a distinct species.

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*CAN. ENT., XXII., 120.

†My specimens differ from Prof. Smith's figure on page 235 (fig. 8) in that the second subcostal venule branches off before the fifth, while in the figure the reverse is the case. This is so in both European and American examples.